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Rate Setting by Charts

By WILLIAM SNAITH
Paul E. Dufresne and Associates

(Before Montreal Chapter Nov. 23rd, 1934)

AS cost accountants you know the importance of a knowledge of costs. It is your province to deal in information as to how much work can be done in an hour, or for a dollar. Being, yourselves, engaged in keeping down the cost of the work of others you are bound to be interested in keeping down the cost of your own work. This is the aim of setting rates by means of charts, or formulas. When a few properly selected observations can be studied and analyzed and a chart constructed which will cover the full range of the operation in question, there is bound to be a worth while economy of effort. There will be more than this. The rates so obtained will be consistent within themselves. The method will not infrequently lead to considerable savings by developing theoretical times which only such a method would indicate to be possible. Good management will then get the work done within these theoretical limits by proper training of the operator.

It is not enough to know what costs **have been in the past**. Such knowledge of costs can be knocked into a cocked hat by the question "What should they have been?" And in measuring the performance of one operator or a hundred it is not enough to find that the time actually taken is so many minutes. This does not answer the question either: "How long should **have been taken**?" These questions lead to an answer in the shape of a standard cost against which actual performance can be measured and compared. Some day the economic value of this sort of analysis will be appraised more highly than it is today and it will be realized that research in this field can profoundly affect the well-bearing of a considerable section of the community and the profits of industry in general.

I propose in the main to confine my illustrations and discussions to the furniture and woodworking industries, chiefly because we are all familiar with furniture and most of us know something of the circular saws and revolving cutters which are the underlying mechanical principles involved in most woodworking operations. (If anyone would like an explanation of what any particular machine or operation involves I should welcome an interruption so that the point can be cleared up.)

From the standpoint of rate setting the problems of the furniture industry are several. The order quantities are not large and the life of a design is usually short. The operations frequently take but little time and there are many operations. A dresser or buffet may involve from 300 to 400 operations, for example. These articles may be made in cuttings of 25 to 100 at a time and they may not be cut more than two or three times before they are shelved for the newer designs. Manifestly the only practical way of setting rates and predetermining costs must be by charts, or tables or formulas.

RATE SETTING BY CHARTS

Setting Incentives

I think that if I describe the actual steps that I took, myself, in analysing one or two of the operations in the machine room of a furniture factory we shall get more quickly to grips with our subject. My recollection is that the first machine for which I constructed rates by means of a chart was a three-drum, underfeed sander about 14 years ago. The manager of the plant pointed out this machine as one with which he felt we could do little. The operator was the first man he had had who didn't have to work overtime to keep up with the rest of the plant. We took this as a virtual challenge and went ahead and made a study, which I shall describe in some detail. We arrived at the conclusion that with a proper incentive we could get quite a lot more out of that sander. The first day we put the new rates into effect the operator tried them out and by noon he had a question to ask. He said he saw that he could make the rates and earn the bonus, but he wanted to know what was going to happen to him the two days a week he wasn't going to have any work for the machine. He was, of course, promised other work and his estimate that it would amount to two days a week was just about right.

The underfeed sander is an automatic feed machine with, usually, only one speed of feed. If this speed is 10 feet per minute and the pieces fed are as wide as the bed, it is obvious that no operator could feed more than one piece 10 feet long in one minute, or 5 pieces each 2 feet long and so on. Now if the bed is 48" wide it is not until the pieces are less than 24" wide that two pieces can be fed side by side, and for practical reasons they will actually have to be slightly narrower than this, or say $\frac{1}{2}$ " clear between pieces and between the outermost pieces and the sides of the machine. This gives us a theory of limiting width which results in the following:

Pieces fed side by side	Approximate width
1	23½ to 48 "
2	15½ to 23½ "
3	11½ to 15½ "
4	9 to 15½ "
5	7½ to 9 "
6	6½ to 7½ "
etc.	etc.

If all our pieces were 2 feet long we could feed 5 per minute of the widths 23½" to 48"; 10 per minute if the width were 15½" to 23½"; 15 per minute if the width were 11½" etc. And, of course, all other lengths can be calculated equally easily and we can build up a chart of this form (Chart 1).

There is only one thing missing in this theory. Suppose we had very short pieces, could the operator keep the machine full? The answer is obviously that he could not. As a matter of fact there is a definite limit to the number of pieces of each width (length being assumed constant that can be handled from the truck to the machine in a given time. We shall have to take a theory of handling time for granted for the moment and from it select handling times for pieces of the limiting widths already mentioned. This gives us a chart of this form (Chart 2).

All that now remains is to combine these two charts into one (Chart 3).

It is obvious in this chart where handling time is the controlling factor and where the speed of feed of the machine controls the time of the operation. Now the faster the feed of the machine the more the inclination of the lines representing this operation time and the further over the handling lines run before they intersect. This is the

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mathematical way of saying that handling times becomes more and more of a factor as the speed of feed of the machine is increased. There are several important implications in this fact which will be discussed later, but the most important one is that the handling time is the controlling factor of many of the pieces of work processed through the various machines.

Handling Time

This leads us to a discussion of a theory of Handling Time, or, the time of handling pieces of wood of the sizes and shapes used in furniture. Handling in this connection involves (a) picking the pieces from a truck and placing it on the table of some machine, and (b) after the operation has been performed removing the piece from the machine to a truck containing the finished pieces. Some element of locating is usually implied along with placing on the table. It is more or less obvious that the dimensions of the piece should be the factors that will govern the time of handling and that it should be immaterial whether the operation itself is sawing, boring, shaping etc. When this particular theory was being developed some of these points were not so obvious, however, and studies and check observations were made by different engineers in plants in several localities and on a large number of operators before it was accepted. That some of the studies were directed toward disproving the theory if possible did not make them the less valuable.

The handling time as already defined was found to depend on two factors—the length and the cross-sectional area and of these length exercised the greater influence. In other words, for the same weight a long slim piece will take longer to handle than a short stubby piece. But a piece 2" x 2" in cross-section will take the same time as a piece 1" x 4".

The graph of handling single pieces is of the following form (Chart 4).

It can, of course, be expressed in the form of a formula, thus—

$$H = 4.6 + .14L + .37A$$

where H is the base handling time in minutes per hundred pieces for lengths (L) in inches and cross-sectional areas (A) in square inches.

This expression can be combined with formulas for cutting time in some cases to give simple expressions, or graphs. It can also be combined with expressions for the elements of "Turning end for end" which is

$$H_T = .4 + .1L + .09A$$

or "Turning over", which is

$$H_T = .25 + .025L + .14A$$

Gauge Lathes

An example of combining the expression for handling time with one for cutting is afforded in setting rates for gauge lathes, where the above formula for handling is combined with one for cutting

$$C = \frac{(L + 5")c}{10}$$

and giving a resulting expression of

$$H + C = 5.74 + \frac{c}{2} + L(0.14 + 0.1c)$$

where c = cutting time in minutes per 1000 inches.

With such a formula, a chart of rates for a group of these lathes can be constructed in a very short time. It will have the

RATE SETTING BY CHARTS

Chart 1.

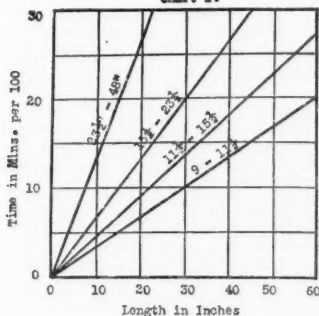


Chart 2.

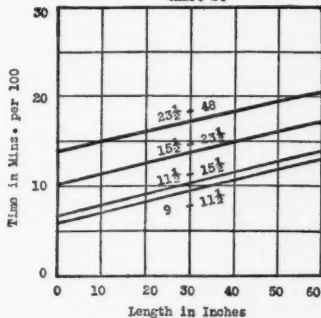


Chart 3.

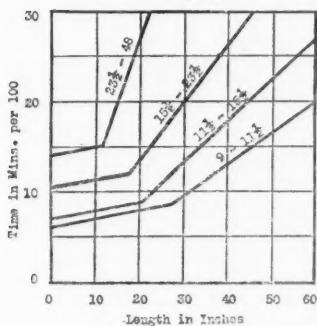


Chart 4.

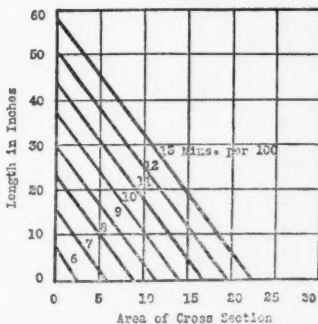
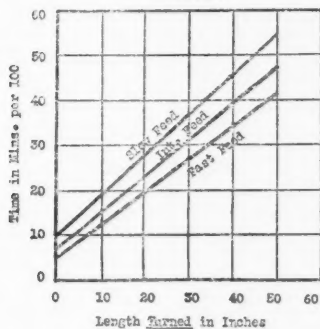


Chart 5.



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merit of accurately taking into account all the factors which affect the time of the operation in their correct proportions. Instead of it being necessary to take a series of time studies all that is called for is to measure the speeds of feed of the lathe and thereby arrive at the values of c . Then select two lengths and calculate the rates from the above formula. Straight lines drawn through these points will give the rates throughout the full range. The chart is of this form (Chart 5).

Mattison Lathe

While we are on the subject of lathes it may be of interest to touch on the building up of the theory behind setting rates for the Mattison Lathe. This is a formidable machine in which both work and cutters revolve very rapidly. The feeding is not automatic and is dependent not only on the depth of cut, but on the relation of the smallest diameter to the total length of the piece. The first time this theory was developed it was based on the fundamental theory for the planer, stickler, etc. For average work on these machines 25 cutter marks per inch will give smooth enough results. So a theory for the Mattison lathe was worked out on the idea that the shaving was unrolled from the piece being turned and that the cutter marks per inch should be 25. Fortunately the work handled did not vary much in dimensions and none of it was slender. But the actual time, by time study, was from 2 to 3 times the theoretical times. Instead of revising the theory to fit the observed facts we set out to try to realize the theoretical figures. We tuned the feed mechanism of the lathe and we tuned up the operator and the results were satisfactory, but short of perfection. Then the operator happened to stay away one day and we had to break in another who happened to be a hand lathe operator. Before the day was out he was making the theoretical rates. (Another victory for science.)

As the theory was further developed to cover the slenderness ratio in addition to the other factors we ran into a surprising confirmation. It is unusual to turn very small work on a heavy machine of this type but in one plant this had to be done, at one time, but changes in design had caused it to be discontinued. The production figures were available and the dimensions of the pieces. So a tentative rate was built up from the formula to see how closely it would apply to one of these small turnings. This rate showed that a theoretically perfect (100%) performance would be 400 pieces per hour. This would mean that anything over 320 per hour would be a creditable performance. The records showed that as many as 375 per hour had been turned out by an operator who was out to establish a record and that actually 200 had been turned out in half an hour. It is to be noted that these figures were for turning considerably smaller than anything on which the theory had been based. Extrapolation in such circumstances would not necessarily be justified but such remarkable confirmation of the theory was very reassuring indeed.

Jigsaw Frets

Frets are not as common today as they were in the early phonograph days, but they are still produced on jigsaws in most plants. The patterns cut vary a great deal and advantage is often taken of the chance to introduce variety into a design by changing the fret. It may thus happen that only 50 frets of a kind may be produced before a pattern is discontinued. Since from 8 to 10 blanks are nailed together and cut at a time, the life of a rate for a job of jigsawing is often very short. The calculation of the rate must, therefore, be rapid. Instead of formulas and graphs the method consists

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of counting the numbers of square corners, points, double corners, etc., and measuring with a map measure the total length of curved lines and straight lines in the fret. These are then extended at the times for each and the total is the base time. The following is an example:—

Calculation of Rate for Fret	
56.4	Straight lines @ 110 M/1000"
229.4	Curved lines @ 70 "
40	Points @ .09
30	Corners @ .18
64	Double Corners @ .40
8	Scroll Corners @ .31
4	Single small scroll corners @ .53
4	Double small scroll corners @ .91
29	Spaces @ .29
	Preparation
	6.20
	15.61
	3.60
	5.40
	25.60
	2.48
	2.12
	3.64
	8.40
	2.10

Total time for bundle of 6 frets 75.15

The details in this case are of small consequence in this discussion and the exact values will vary with the equipment used and the nature of the work done, but the example illustrates a method which can be applied in a considerable variety of situations. The times for the various elements must be obtained with care in the first place but once obtained they can be combined and re-combined with confidence, as long as the nature of the operation remains unchanged.

Boring

The method just described, combined with the theory of handling time, gives us a means of rating the operation of boring. Holes of all sorts of diameters and depths are bored in some parts of articles of furniture. The holes may be bored one at a time, or in multiple, two, three, four or more at one stroke. While the various combinations are practically infinite in number the whole theory can be reduced to a single sheet of paper. It is necessary to take enough time studies to cover the full range of holes bored and then to analyze the studies to get the time for a sufficiently representative range of holes to permit of tabulation. Since the operation is quite rapid it will be found that a difference of less than half an inch in the depth of a bored hole will not make enough difference in time to be measured by an ordinary stop watch; and since a sharp bit cuts pretty freely it is sufficient to group diameters into relatively few groups. A portion of a table of boring rates would be of this order:—

Rates for Boring		1	2	3	4
Holes	Depth				
Nails—up to 3/16" dia.)	Up to 15/16	1.5			
	) 1" to 1-1/2"	2			
Screws & Dowels	) Up to 15/16	2	3	4.5	5
	) 1 to 1-1/2	3	4.5	5	8
	) 1-9/16 to 2	4	7	10	
	) On slant—up to 1 1/4	7			
Diameters 5/8 to 7/8)	Up to 15/16	3	5	7	9
	) 1 to 1-1/2	5			

Rates are in minutes per 100 pieces.

Cabinet Work

Assembling furniture is generally referred to as Cabinet work. It is usual for the method of assembling each type of case to be fairly

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well standardized in each particular plant. There may be small differences, due to design, in the number of screws, nails, glue-blocks, etc. Here, instead of building rates up it is more convenient to build them down, as it were. In other words we start with a rate for a standard case built in a certain way and we build from this by additions and deductions. The assembly of a dresser rated by this method affords a good example.

Dresser No. 30 Type Assembling Case

Operation includes:

- Handle all parts, including:
- Two sides, top frame assembly, middle and bottom frame, top back rail.
- Warm ends in heater.
- Glue 6 dowel holes and ends of 6 dowels.
- Glue 6 dado grooves.
- Glue 2 grooves for back rail.
- Glue 2 spots on back posts.
- Assemble and clamp up in case clamp.
- Glue and place 2 triangular brace blocks.
- Glue and place 28 glue blocks.
- Drive and set nails.
- 2 nails at top front rail.
- 4 nails in brace blocks
- 18 nails in frames.

Stack cases in pairs, one on top of other.

Time Standard — 2500 Minutes per 100 Cases

Additions and deductions:

Triangular brace blocks, each	95	minutes	per	100	cases
Nails in front rail, each	40	"	"	"	"
Nails at dust frames, each	21.5	"	"	"	"
Glue blocks, each	17	"	"	"	"

Finishing

Finishing furniture involves a number of operations. Finishing materials are brushed or sprayed on the work and there are various rubbing and polishing operations. Each plant has its own methods and sequences of operations and there is little attempt at standardization. Changes are often made in existing procedure and the judgment of the finishing room foreman is law in his bailiwick.

Rates here must be looked on as crystallizations of existing practice. There is practically no absolute standard. It may take 1 minute to spray a certain area with varnish in one plant and three times that long in another and the rates must be calculated accordingly. Comparisons may have some value in certain cases but usually altered conditions make them valueless.

The most satisfactory theory, as far as finishing operations are concerned, is based on the rather obvious idea that if one surface is twice as large as another it will take twice as long to finish it. In other words, we find that the time is proportional to the area. Our only difficulty is to work out a simple, fast and more or less conventional way of measuring the areas of pieces of furniture. We have to keep in mind each of the different operations so as to use our measurements over again as often as possible, unchanged. Some pieces may have work done on interior surfaces at certain operations, as when drawers are shellacked inside at the same time as the outside of the case is sprayed. The work on some surfaces may receive extra emphasis at certain operations, as when tops get more rubbing than the rest of the case. Carvings and routing cuts may have to

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be measured for some operations and not for others; in spraying they do not affect the time to any extent but in rubbing they affect it considerably. Subject to such limitations the area of a case can be taken as that of the top, front, two sides and four legs. This area, (plus any extras) multiplied by the time per 1000 inches for filling; wiping; spraying stain, shellac or varnish; sanding; rubbing or whatever the operation may be, plus the handling time for the case, will give the base time for each finishing operation.

It will be apparent that considerable study will be called for in arriving at the basic rates in each case but setting the actual rates will be a comparatively simple matter, although the operations are themselves somewhat involved and call for considerable exercise of skill and judgment.

Actual examples for a couple of operations will serve to illustrate:

Chiffonier — 1st coat	300 + .04 A	310 + .05 A
Dresser — 1st coat	200 + .04 A	210 + .05 A
Chiffonier— 2nd coat	150 + .04 A	160 + .05 A
Dresser — 2nd coat	100 + .04 A	110 + .05 A

Crating

Crates are of all sizes and shapes and may be made a few of a size at a time, or in quantities. It is possible in many cases to bring out of the analysis of a group of time studies a few average times which will cover the usual range of this kind of work in a plant. The individual pieces in a crate will be nailed into place with 2 or 4 or 6 nails and enough pieces should be observed to get the average time for each of these numbers of nails. It is unusual for the actual observed times to depart very far from the average, and hence synthetic rates based on such averages are bound to be fair. The rate for a crate can be built up by counting the number of pieces held by 2 nails, the number by 4 nails, the number by 6 nails and extending these at the proper average times; the sum plus a fixed handling time for the article crated will be the base time for the crate.

It is evident that this use of averages is somewhat less exact than the more minute analysis of the elements in most of the operations previously described. The nature of the work itself is rougher and less capable of standardization. Crating lumber is not entirely void of defects and extra nailing is frequently called for. The conditions under which the work is done must be looked on as average conditions. I have purposely sketched in this somewhat approximate method of setting rates to show that microscopic analysis is not always called for.

From all the foregoing it should be apparent that in even one industry there is scope for considerable variety in the method of attacking the problem of setting rates. Some individual operations call for minute and careful analysis and others for good average approximation, with intermediate degrees of accuracy in between these extremes. Illustrations of several of these have been given. The purpose has not been to give a set of formulas which could be applied to particular cases. Very few rate formulas can be transferred from one plant to another, but the method, itself, is universal and applies to any plant, in any industry, anywhere.

Importance of Foreknowing Costs

The greatest value of setting rates by this method is not necessarily that it provides a simple way of arriving at how much the workman is to be paid for his work. That is important enough, but it is even more important to know before we undertake to pay him that we can afford to do so. In other words it is supremely important before the work is started to know how much it is going to

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cost, not approximately, but accurately, and to know that we can definitely keep the cost within set bounds. There is no satisfaction in knowing that everybody has worked hard and conscientiously—and that in spite of all, the business has lost money. The operation has been a success but the patient has died. It takes little ability to sell below cost, almost anyone can do it as long as his resources last and some can even do it beyond that point and use up the resources of others. Good management consists in living within one's means and this can be done best by knowing (not guessing) what something will sell for and then making it for enough less to leave an adequate profit. The place of costs predetermined by means of charts in this picture is what we have tried to depict. It looks like a pretty important part of the picture.

How important, can be judged from an instance in our own recent experience. A firm was offered a substantial order at a certain price. It was known to be a very close price, but in the opinion of competitors it was close to the break-even point. Using an accurate method of predetermining costs it was found that with current prices of material and labor a loss of about 10% would be sustained if the order were taken. It was not taken. The plant capacity was kept for profitable work instead.

There is one point in connection with costs predetermined by means of charts which will commend itself particularly to accountants. It gives an accurate way of arriving at direct labor which is the pivot point around which indirect labor revolves in the shape of burden. If there is an error in the determination of direct labor it will reappear with something added to it in the indirect labor estimate.

Of course charts and formulas are not confined to the determination of rates for direct labor. The whole business can be charted in a profitgraph. Sales can be compared with statistics and index numbers. Trends can be worked out in charts and tables which will help mightily to keep business in the course which leads to Profits. These are all mathematical devices for the help of business and yet they can be used and applied in many cases without going at all into the mathematics behind them. They are, perhaps, outside the scope of this paper, but the broad principles involved are the same in them all.

A chart is a picture of a set of facts, usually the facts are figures. We have seen a few of the figures of the woodworking field expressed as charts and formulas and gathered some idea of how these are applied to the measurement of work done, the calculation of wages due and the predetermination of costs. If these examples will point the way to further application of charts and formulas to business, this paper will have served its purpose.

Cost Accounting in the Wine Industry

By H. C. UPPER
Canadian Wineries, Ltd.

(Before Hamilton Chapter, February 6, 1935)

A MORE accurate caption of this paper might be the process of wine manufacture and costs for same. In order to help you follow me more easily, I have given you an illustration of a

COST ACCOUNTING IN THE WINE INDUSTRY

typical lay-out of a process for making sweet wines such as Port and Sherry. I have also given you a list of accounts which indicate the departments into which the plant is divided and the items which make up the costs in each department.*

In the first department, the grapes received from the Growers are crushed through the ROLLER CRUSHER and pumped to the OPEN FERMENTERS, where sufficient yeast is added to induce a rapid fermentation lasting about seventy-two hours. It may be of interest to mention at this point that nature provides a yeast on the outside of the skin of the grape which would set up a fermentation after the fruit was crushed. The manufacturer seldom depends on this yeast however, as it would not give the rapid fermentation or the uniform products desired; nor is it always present at the time the grapes are gathered, as rain will wash it away. The wine maker prefers to grow his yeast in a special yeast room. He feeds this yeast on foods and subjects it to conditions to make it strong. As you know, nature gives plants the power to adapt themselves to the conditions under which they must live. In due course the fermented juice is strained from the pulp and run to the NEW WINE RECEIVER. The pulp which remains is pressed in a HYDRAULIC PRESS, by being wrapped in stout cloths, placed between slotted frames and subjected to a pressure sometimes as high as 3,000 lbs. per square inch. The wine from this pulp is pumped to the NEW WINE RECEIVER also. From the receiver it goes through the MIXER to the CLOSED FERMENTERS, where a gentle fermentation continues for several months. When fermentation has ceased the wine is ready for the STORAGE TANKS, where it remains a period of years. I say remains, but I do not mean that it does not receive attention. The storage cellar must be kept immaculately clean, and samples must be taken at frequent intervals to be sent to the central laboratory for chemists to test, in order to avoid acetic infection. The wine must also be racked, that is, pumped off the lees which settle to the bottom of the tanks.

It is interesting to note that time is spoken of in years in connection with this department, whereas in most industries production is spoken of in terms of hours or days.

Costs are calculated and kept in terms of Imperial gallons, (not wine or proof gallons), whether the wine is in tanks, barrels or glass. The department just described covers the manufacture of wine from the receipt of the grapes to the end of the first ageing period. The number '100' is given to it by us and costs are calculated and kept under the sub-headings set out on the schedule supplied to you. They consist of Grapes, Labour and whatever sugar is necessary to correct any deficiency of grape sugar. The grape sugar present depending on the amount of sunshine and rainfall in the season in which the grapes are grown.

Later Processes

We now have a stock of wine in storage tanks which has been aged to a degree that enables the wine maker to judge its characteristics, such as its bouquet, taste, etc. It is now ready to be put through the next department, No. 200, 'Blending Department'. Here wines are blended and grape spirit is added, where necessary, depending on the type of wine being produced. From different wines in storage standard products are produced by the wine maker in this way. A further ageing is necessary in this department to allow the

* The lay-out is not reproduced, but the list of accounts is appended to the article.

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marrying of the wines or wines and spirits blended. Costs are calculated as shown on the schedule.

From this stock of blended and aged wines we are now ready to draw wines for processing prior to filling bottles or barrels. I am not at liberty to disclose all the steps taken in this department, as each wine maker has his own conditioning treatment and the details are guarded carefully. After conditioning the wines are filtered through filters the last one being a germ-proof filter. When the wine comes from this filter it is sterile and very brilliant. Wines treated in this processing department (No. 300 on the schedule of accounts) as stated before have started on their way to the shipping department whereas, in departments prior to this they were being held in storage. Our policy in regards to costs is to consider the cost of wines in storage to be made up of items which enter directly into the costs of same. All supplemental plant expense including all depreciation on storage tanks is costed as a supplemental burden against the departments in which the wines are being prepared for shipment.

The wine is received in the Bottling Department which comes next, (No. 400 on the schedule), direct from the germ-proof filter and the bottles are filled on a vacuum filler, being sealed to the filler with two nozzles in the throats of the bottles. Through one nozzle the air is drawn out and wine flows in through the other. The bottles pass from the filler to the corker or capper on an endless conveyor and then on to the labeller.

Direct labour supplies and expense are collected against the gallons packed in each type and size of bottles and the supplemental burden is added as in Department No. 300. Costs are calculated in the barrel-filling department in the same way.

It is not necessary to discuss the procedure of a packing department as this is common to most industries. It is sufficient to say we call this department "No. 500" and calculate costs on the same basis as in the Bottling Department.

I now have described to you the manner in which we arrive at our platform costs.

The cost of distribution in our industry is not nearly as complex as is experienced by most others. Our wholesale customers are few, being made up principally by the Provincial Liquor Control Boards. The policy of these Liquor Boards is to take delivery at one central point in each province. There to consolidate the products received from different firms in pool cars for shipment to retail outlets. Our costs of distribution are calculated by provinces under the headings "Shipping Expense", "Transportation", "Advertising", and "Sales Department Expense".

I have told you about the production of sweet wines and costs for same. I might go on and tell you about other branches of the industry which are quite different, such as the production of dinner wines, (Claret and Sauternes), or of Champagne. But rather than do this I will tell you of a particular problem which was placed before our cost department and tell you how it was solved.

We constructed a winery in the United States, principally for the production of Champagne, and although the process is the same as is being used in Canada to-day, the value of the plant and equipment in relation to the possible out-put is different, due to the size of the production units and commodity prices now in comparison with commodity prices in existence at the time the Canadian plant was constructed. Also due to the increased size of the equipment the production per man per hour is greater. The cost problem in regard to this plant came about due to the management wishing to start

COST ACCOUNTING IN THE WINE INDUSTRY

sales promotion work in advance of actual production. The cost department asked for the platform cost and it was arrived at as follows: First, on the basis that the plant would operate at 75% of capacity, and secondly, on the basis that it would operate at 50% of capacity.

The fixed charges were calculated with the assistance of the plant engineer. These were proved by adjusting the rates in effect in the Canadian plant, taking into consideration the difference in prices and values in Canada with those in the United States. The costs which vary directly with production were calculated and proved by adjusting with the Canadian prices also. From these calculations it was simple to arrive at fairly accurate factory platform costs for the products on the basis of 75% of capacity and 50% of capacity.

The cost systems in effect in the wine industry in Canada have been applied during very recent years. Up to some five years ago this industry was in the hands of family corporations who paid little attention to ordinary book-keeping records and kept no statistics on production costs.

CANADIAN WINERIES LIMITED OPERATING ACCOUNTS

L: Labour
M: Material

Department No. 100—Manufacturing

Account No.

- 101-L Weighing grapes
- 102-L Unloading grapes, crushing grapes
- 103-L Yeasting (open and closed fermenters)
- 104-L Sugaring (mixing and pumping)
- 105-L Punching (open fermenters)
- 106-L Pumping (wine to and from fermenters and receivers)
- 107-L Pressing (preparing cloths, pressing and disposing of grape cake)
- 108-L General (cleaning racks, fermenters, press cars and cloths)
- 149-M Yeast
- 150-M Grapes
- 151-M Sugar
- 152-M Steam (sterilizing fermenters, tanks, etc.)
- 153-M Power (hydraulic press)
- 154-M Power (pumps)
- 155-M Power (grape crusher)

Department No. 200—Blending

- 201-L Blending (pumping to blending tanks)
- 250-M Wine
- 251-M Spirits
- 252-M Steam (sterilizing blend tanks)
- 253-M Power (pumps)

Department No. 300—Processing

- 301-L Filtering (rough filter)
- 302-L Filtering (final filter)
- 303-L Fining
- 304-L Special conditioning
- 305-L Sweetening
- 306-L General (cleaning tanks and disposing of lees)
- 350-M Sugar (sweetening)
- 351-M Filter Material
- 352-M Fining Material
- 353-M Sundry Material
- 354-M Steam (sterilizing tanks and equipment)
- 355-M Power (pumps)
- 356-M Wine

COST AND MANAGEMENT

Department No. 400—Bottling

- 401-L Sterilizing Bottles
- 402-L Sterilizing Jars
- 403-L Filling, Corking or Capping Bottles
- 404-L Filling, Corking or Capping Jars
- 405-L Labelling Bottles
- 406-L Labelling Jars
- 407-L Government Sealing Bottles
- 408-L Government Sealing Jars
- 409-L Inspecting Bottles
- 410-L Inspecting Jars
- 411-L Wiping Bottles
- 412-L Wiping Jars
- 450-M Bottles
- 451-M Jars
- 452-M Corks, Seals, for Bottles
- 453-M Corks, Seals, for Jars
- 454-M Capsules for Bottles
- 455-M Labels for Bottles
- 456-M Labels for Jars
- 457-M Sundry (label gum, etc.)
- 458-M Power (machines)
- 459-M Wine

Department No. 500—Packing

- 501-L Wrapping Bottles
- 502-L Packing Bottles
- 503-L Packing Jars
- 504-L Labelling & Stencilling Cartons for Bottles
- 505-L Labelling & Stencilling Cartons for Jars
- 550-M Cartons for Bottles
- 551-M Cartons for Jars
- 552-M Labels for Bottle Cartons
- 553-M Labels for Jar Cartons
- 554-M Wrapping Paper
- 555-M Sundry (gummed tape, glue)
- 556-M Wine in Bottles
- 557-M Wine in Jars

Department No. 600—Barrel & Keg Filling

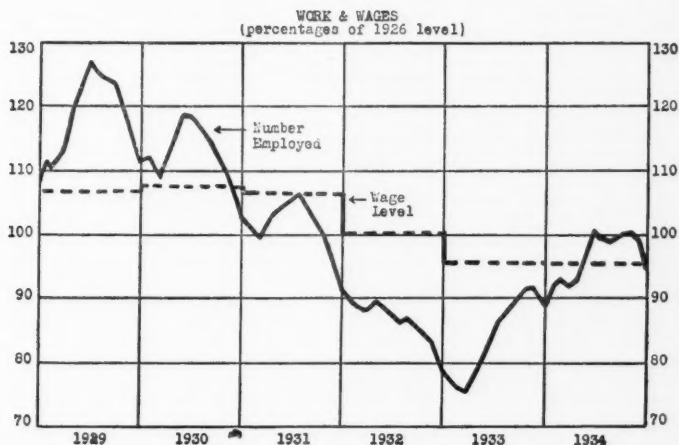
- 601-L Filling Barrels
- 602-L Filling Kegs
- 603-L Steaming Barrels
- 604-L Steaming Kegs
- 605-L Painting Barrels
- 606-L Painting Kegs
- 607-L Weighing Barrels
- 608-L Weighing Kegs
- 650-M Bungs, Spiles and Straps
- 651-M Paint
- 652-M Steam

Work and Wages Aid Public Buying Power

Number of People Employed in Recent Months Has Been Highest Since 1931—Wage Trend Also Helps Average Income—
Outlook for Retail Business Best Since 1930

By W. A. McKAGUE

THE retailer knows, perhaps better than anyone else, how closely sales depend upon employment and wages. The amount of retail business, in turn, governs factory production and import trade, and it is also from this source that much of the demand for bank loans and other forms of credit comes. If retail business is good enough, it will even help the building trade.



Retail trade of course does not move by itself. It is linked up with all other business. The retailer can sell only when his customers have employment and incomes. Which is cause and which is effect, is always being argued but never settled. When times are bad as they certainly were in recent years, there is a widespread demand that something be done about it, but there is no agreement on how to do it. In boom times similarly, retail business and general employment grow together, and the trend keeps on until some very radical change turns it in the opposite direction.

COST AND MANAGEMENT

The fine arguments about cause and effect we can leave to the economists and statesmen. The outstanding fact just now, of real encouragement to every merchant and manufacturer, is that improvement is taking place. It actually started about April, 1933—nearly two years ago—with advances in the prices of rubber, cotton and some other raw materials. But climbing out of a severe depression was a slow job. There have been pauses and interruptions, but by this time there is plenty of evidence of real gains in employment, wages and spending power, which assure the progressive merchant that his business can be made to grow.

In the statistical departments at Ottawa they collect, from nine thousand of the leading employers in Canada, figures showing the numbers of people on their payrolls each month, the total number of workers so covered being now close to one million; these are in manufacturing, railway and similar work, though the figures do not include farming, fishing and other small enterprises, from which it is difficult to secure such information. These monthly figures are then turned into percentages of 1926 figures. The total percentage showed serious declines throughout the depression period. On April 1, 1933, it was as low as 76 per cent. And this did not tell the whole story by any means. Many thousands of workers, while still on the lists, were only on short time, it being the policy of most concerns to give as many as possible of their workers at least partial employment. Moreover, wage rates were cut, not much at first, but more frequently when times became extremely difficult in 1932 and 1933. The average wage level dropped by more than 10 per cent from 1930 to 1933. This average level is figures mainly from union rates. Unorganized labor is subject to wider fluctuations. From these various causes, total wages distributed to workers must have greatly declined.

The whole position started to change in April, 1933, so that for nearly two years it has been improving, not every month but nevertheless steadily. By the autumn of 1933 the employment average was back to 90 per cent, and in the past six months it reached 100 per cent. There is always a drop just after the Christmas season, but both a year ago and this year the drop has been less than usual, which indicates that the general trend is still upward. Wage rates continued to go down in most of 1933. They will be slower to move up, but for 1934 they are estimated to have at least held steady. With skilled workers being gradually absorbed back into employment, and with public sentiment and the influence of governments on the side of fair or at least minimum wages, the average wage should soon start to definitely improve. Moreover, thousands of workers are gradually getting back from part time to full time, which increases their earnings even with no raise in rates.

1935 has opened with employment at the best level, for this season, since the beginning of 1931, and the trend is upward now, instead of downward at that time. It may fairly be concluded that the outlook for retail business is the best since 1930.

"Let me kiss those tears away, sweetheart," he begged tenderly. She fell into his arms and he was very busy for a few moments. But the tears flowed on.

"Will nothing stop them?" he asked breathlessly.

"No," she murmured. "It's hay fever, but go on with the treatment."

MEMBERS' PROBLEMS

MEMBERS' PROBLEMS

Questions

- (a) In setting up reserves for depreciation, and showing them on the liability side of the balance sheet, what is the general accounting practice in disposing of these items after the items have been set up over the ten or twenty year period?
- (b) Can a corporation with a Preference (cumulative) and a No Par value issue of stock, change over the preference issue to a Debenture Bond issue, paying interest instead of dividends, if so, how should they proceed to make the change, provided the proposition was sanctioned by a two-thirds vote of the shareholders.

Answers

(By Professor R. R. Thompson, C.A., Montreal).

(a) As soon as the amount of the Reserve for Depreciation for the asset concerned, when deducted from the cost of the asset, equals its scrap value, no further changes are made until the asset is finally sold. When this is done the asset is credited with its Reserve for Depreciation, and the proceeds of the sale; and the balance is treated as depreciation either under or over-charged in previous periods, and adjusted by a charge through surplus.

(b) The questioner does not state whether the company is registered under Dominion or Quebec Law. In any case it is really a legal question, because it is not a change in form of ownership, but a change from ownership (preferred stock-holders) to the status of lenders of money (Debenture or Bond-holders). I do not think that the following sections are the only ones concerned:—

Dominion Act: Section 48/58

Quebec Act: Sections 46/55

I would recommend the taking of proper legal advice, because the Preferred Stock Capital is to be reduced, and the Bonded Indebtedness increased. The following points need to be borne in mind:—

- (a) Preferred Stock Capital is to be wiped out, under the Company Law concerned—see references above.
- (b) Before this can be done creditors must be considered.
- (c) Also shareholders must be considered.
- (d) Bonded Liability is to be increased.
- (e) Again creditors must be considered before remaining shareholders can sanction this.
- (f) If the Bond-holders are to have a fixed charge on the assets, the final effect will be to place a group of individuals, who as shareholders ranked after the ordinary creditors in front of those creditors.

A full reply could only be given after a study of the charter and by-laws of the company, and of the company law concerned. He should get legal advice.

Sheerluck Homes—"Watson, quick, my magnifying glass—there's something lying here on the beach!"

Dr. Watson—"What do you see, Homes?"

Sheerluck—"As near as I can make out it's a woman's bathing suit."

TARIFF and TAXATION

Tariff Board Rulings

The Tariff Board has delivered a number of rulings, most of them answering appeals taken to the board by the Department of National Revenue. These declared that jellies (but not including jelly powders), soaps, fabric dyes and show dressings were dutiable under the tariff items in which they appeared as such, notwithstanding their alcoholic content.

Another ruling decreed that corks, manufactured from cork-wood, were not of a class or kind made in Canada. The dump duty was therefore not applicable to imports.

A third decision ruled that dates imported in 20-pound boxes were to be considered as imported in bulk.

Departmental Rulings

Pyrex Oven or Tableware which, after being used for the purpose of cooking food in an oven, is set temporarily in a metal frame while serving the food at a dining table, is considered not to be entitled to entry under tariff item 326a as for mounting, but is classified under tariff item 326 in accordance with the decision of the former Board of Customs, set forth in Appraisers' Bulletin No. 1809.

"Burdick" Electric Light Bath Cabinet, per descriptive illustration. Tariff Item 445k.

Shelving of Iron or Steel, painted, not in the form of cabinets but consisting of shelves, bases, uprights, cross members, backs, and shelf supports, to be put together after importation, for use in stock rooms, warehouses, factories, etc., for the purpose of storing merchandise. Tariff Item 446a.

"Lino-Tabler" Multiple Broach, specially designed for preparing horizontal printing rule so that the verticle printing rule may be inserted therein, in order that the verticle lines may be printed at the same time as the horizontal lines and other printed matter. Tariff Item 412d.

"Wells" Cross Rule Form Machine, per illustration, designed for the slotting of printing rule so that it can be placed in the form with the type for the purpose of printing the regular printed matter as well as the verticle and horizontal lines in one operation. Tariff Item 412d.

Ben Day Shading Apparatus, when for use in shading plates in the production of printing plates by the photo-engraving process. Tariff Item 412a.

Ottawa, 29th January, 1935.

Appraisers' Bulletin No. 3494 is cancelled.

Second-hand Bottles from the United States

Referring to Appraisers' Bulletin No. 2942 (file 120682)—Board of Customs Decision—"Declared that second-hand or used bottles, plain lettered, or labelled, are subject to valuation for duty purposes at the fair market value of new bottles of the same size and description at the place of export less a discount of 25%, without being liable to Dumping Duty."

The value of new glass bottles in bulk in carload lots may be taken as follows:

TARIFF AND TAXATION

Splits —	\$3.30 per gross
Pints —	3.80 per gross
Quarts —	4.85 per gross

Ottawa, 21st January, 1935.

Supplement No. 4 to Appraisers' Bulletin No. 4230

The Honourable the Minister of National Revenue has ordered that the fixed valuation for duty purposes on Pears set forth in Appraisers' Bulletin No. 4230, be cancelled insofar as it applies to points in MANITOBA AND WEST THEREOF, effective the 22nd January, 1935.

Ottawa, 18th January, 1935.

Supplement No 2 to Appraisers' Bulletin No. 4215

The Honourable the Minister of National Revenue has ordered that the fixed valuation for duty purposes on Celery set forth in Appraisers' Bulletin No. 4215, be cancelled insofar as it applies to points in ONTARIO AND EAST THEREOF, effective the 31st January, 1935.

Ottawa, 25th January, 1935.

RUBBER FOOTWEAR

(Canvas Rubber Soled, and Boots and Shoes)

By an Order in Council passed under Section 43 of the Customs Act the Honourable the Minister of National Revenue was authorized to fix the value for duty of Rubber Footwear (Canvas Rubber Soled, and Boots and Shoes) not entitled to entry under the British Preferential Tariff or any lower tariff, and he has, under such authority, fixed the minimum value for duty thereof as follows:—

Rubber Soled Canvas Footwear

Class	Canadian funds F.O.B. point of production			
	small	medium	large	
	per pr.	per pr.	per pr.	
"A" Low Laced Oxford				
Untrimmed	\$.34	\$.42	\$.48	
Trimmed but without heel .....	.41	.52	.59	
With heels but without trimming .....	.41	.52	.59	
With heels and trimming .....	.48	.63	.69	
"B" Low One Strap or T Strap Oxford				
Untrimmed .....	.32	.39	.46	
Trimmed but without heel .....	.39	.50	.57	
With heels but without trimming .....	.39	.50	.57	
With heels and trimming .....	.46	.60	.67	
"C" Laced Boot—Balmoral Pattern				
Untrimmed or no further trimming than eyelet facing and ankle patch .....	.44	.49	.54	
Trimmed but without heel .....	.58	.66	.71	
With heels but without trimming .....	.51	.59	.64	
With heels and trimming .....	.65	.77	.82	

Note.—Trimnings shall be any exterior attachment or addition (other than foxing strip) of rubber, leather or rubberized fabric.

Small—To include Misses', Childs', Youths', and Little Gents' sizes.

Medium—To include Boys' and Women's sizes.

Large—To include Men's sizes only.

Rubber Footwear

(Not including rubber soled canvas shoes)

COST AND MANAGEMENT

Class	Canadian funds F.O.B.		
	point of production		
	small	medium	large
	per pr.	per pr.	per pr.
"H" Boots			
Standard quality			
Having no fastenings other than strap and buckle at top of Stormking and Hip Boots.			
Knee—bright or dull finish over ankle height.			
All black	\$.82	\$ 1.05	\$ 1.20
For colours other than black .....	.97	1.24	1.43
Extra quality			
Knee—bright or dull finish over ankle height.			
All black .....	....	1.24	1.54
For colours other than black .....	....	1.44	1.78
Thigh or Hip			
Bright or dull finish over knee height (any qual.)			
All black	1.47	1.55	2.17
For colours other than black	1.63	1.74	2.40
"K" Rubber Overshoes			
With rubber exteriors with or without dome or strap fasteners (not including automatic slide fasteners) with or without cuff or linings			
	.64	.73	1.41
With automatic slide fasteners	1.06	1.16	1.83
"L" Cloth Overshoes			
With cloth exteriors or combination of cloth and rubber, with or without dome, strap or buckle fasteners (not including automatic slide fasteners or fur trimming)			
	1.00	1.09	1.13
With automatic slide fasteners only	1.30	1.51	1.55
With fur trimming only	1.30	1.55	....
With automatic slide fasteners and fur trimming	1.61	1.97	....
"M" Low Boots or Lumbermen's Boots			
Laced or buckle fastenings, with or without heels, Balmoral pattern.			
All black .....	.72	.86	1.10
For colours other than black .....	.88	1.05	1.29
Bottoms only			
Black .....	....	....	.80
For colours other than black .....	....	....	1.00
"O" Rubbers			
Without fastenings or lacing of any type and below ankle height			
	.32	.38	.45
Extra heavy type			
Rolled edge or extra thick soles or uppers .....	.33	.44	.58

The above values apply at the point of production and when the goods are shipped to Canada direct from an intermediate point all charges to such point, converted to Canadian funds at the rate of exchange on the date of shipment to Canada, are to be added.

Provided that the value for duty shall in no case be less than the fair market value as sold for home consumption to jobbers generally at the time and place of direct exportation to Canada.

TARIFF AND TAXATION

The provisions of Section 6 of the Customs Tariff Act apply, and rubber footwear shipped on consignment without sale prior to shipment shall be subject to the same special duty as if the goods had been sold prior to shipment.

The above values are not to apply to importations or portions thereof bona fide purchased and sold by the importer on firm contract to purchasers in Canada on or before this date.

Bona fide purchase orders by known importers and sales against such orders to Canadian clients made on or before this date are to be examined and noted immediately. Other importers' purchases and sales are to be similarly recorded as soon as your attention is directed thereto.

REFERENCE LITERATURE

RECEIVED IN FEBRUARY

Transport Forwarding Business, Managerial Control of. The Accountant, January 26.

Department Stores, Cost Problems of. Journal of Accountancy, February.

Oil Producing Company, Bookkeeping for an. Journal of Accountancy, February.

Cost Accounts and Their Relation to General Accounts. Commonwealth Journal of Accountancy, December.

Standards—Their Development and Use, Practical. N.A.C.A. Bulletin, Feb. 1.

Manufacturing Expense, Practical Standards For. N.A.C.A. Bulletin, Feb. 1.

Uniform Costing by Industries. Cost Accountant, January.

Budgeting in Industry. Cost Accountant, January.

Dominion Companies Act, Discussions on. Canadian Chartered Accountant, February.

Shoe Industry, Cost Plan for the Women's. N.A.C.A. Bulletin, Feb. 15.

MEMBERSHIP CHANGES

February, 1935

MONTREAL CHAPTER

Add

Lefebvre, J. O., L'Illustration, La Societe des Journalists Canadiens Inc.

Hinde, F. L., 5622 Sherbrooke St. W., Apt. 5.

Change

Blunt, H. W., C.A., to Stevenson, Walker, Knowles & Company.

TORONTO CHAPTER

Add

Anderson, J. S., Western Canada Flour Mills Co., Ltd.

Take Off

Daly, G. W., Canadian Locomotive Co., Ltd., Kingston. (Transferred to non-resident)

WINNIPEG CHAPTER

Take Off

Anderson, J. S., Western Canada Flour Mills Co., Ltd. (Transferred to Toronto)

Non Resident Members

Add

Daly, G. W., Canadian Locomotive Co., Ltd., Kingston.

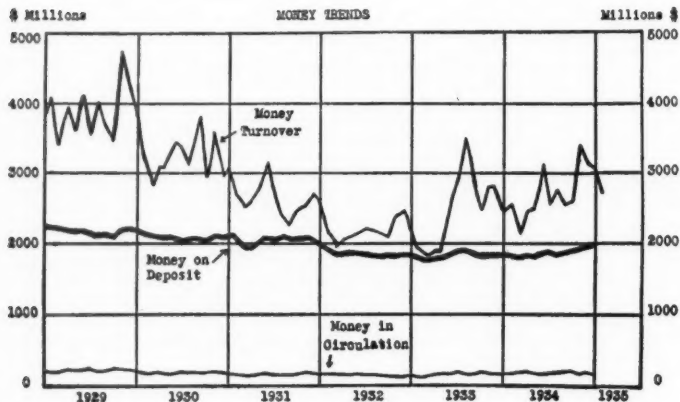
COST AND MANAGEMENT

MONEY TRENDS SHOW BETTER BUSINESS

Increases Have Taken Place in Money in Circulation,
Bank Deposits, and Monthly Turnover.

THERE is substantially more money in use now than there was two years ago, when the depression was at its worst; and compared with a year ago, there is also a gain. Monetary figures are closely related to the trend of business as a whole, and it is of interest to note how they have moved in recent months.

The actual amount of "cash" in circulation, that is, coin and bank and government notes, does not vary greatly. In the peak of prosperity in 1929, there was about \$200,000,000 in circulation in notes of the Dominion government and of the Canadian banks. It dropped to a low point of \$134,000,000 in January, 1933. By the end of 1933 it was up to \$151,000,000, and by the end of 1934 to \$157,000,000. This is note circulation in general use—it does include the government notes of large denominations which are used only for settling balances between the banks. It is made up chiefly of Dominion government \$1 bills now totalling about \$20,000,000, government \$2 bills totalling about \$14,000,000, and bank notes in denominations of \$5, \$10 and higher. Coins are not included; though the Mint records the amounts of coins issued and withdrawn, it does not know what amounts are in use at a given time.



MONEY TRENDS SHOW BETTER BUSINESS

Cash is used only for the smaller day-to-day transactions, however. A much greater total of business is done through cheques and drafts drawn on bank deposits. Records of these accordingly give a much more comprehensive picture of business. Bank deposits show the current savings of individuals, and the working balances of business firms. To some extent, therefore, they indicate immediate spending power. The total on deposit in the banks in Canada averaged about \$2,200,000,000 in 1929. In February, 1933, it was down to \$1,829,000,000. By the end of 1934 it had recovered to \$1,983,000,000. This "money on deposit" of course is not kept by the banks in the form of cash. Most of it is out on loan, earning interest for the banks, and enabling them to pay their expenses and to pay interest on the savings deposits. It is obvious that while deposits tend to grow in good times, and to decline in bad times, the total on deposit is not a measure of the amount of business being done; much of the money is idle, or goes into government bonds, when industrial concerns can not use it profitably.

The best money record of business activity is found in the monthly "bank debits", which are the totals of cheques cashed against individual accounts. These record the bulk of business dealings, and certainly all of the larger transactions. In some months of 1929, the total was over four billion dollars. In January, February, March and April of 1933 it was below two billions each month. Since then it has definitely improved, rising to above three billions in some months. Last December showed a gain of 22 per cent. over December of 1933. January, 1935, was about three per cent. over January of last year.

These figures throw some light on the complaint, which is frequently heard, that there is not enough money in circulation. It is often pointed out that debts are far in excess of the amount of gold or other money in the world. But debts are not incurred, nor are they repaid, by passing cash from hand to hand; they are rather transfers of credit. And the bulk of business is handled in a similar way. As we have seen, the amounts on deposit in our banks total much more than all the money in circulation in Canada. And the total of business transactions each month is many times the total of money in circulation, and is even greater than the total on deposit. The same cash is used over and over during the month, and the same bank credit may also change hands more than once.

The figures also show that business is better—that there is more money in the pockets of the people, and more to their credit in the banks, and, what is more important to the business man, there is a more rapid turnover in cash and credit. That makes business activity, and it is from activity that profits are obtained.

"Are you a native of this place?" asked a traveller in Kentucky of a colored resident.

"Am I what?" said the puzzled black.

"I say, are you a native here?"

While the man was still hesitating over his answer his wife came to the door.

"Ain't you got no sense, Sam?" she exclaimed. "The gen'l'man means was yo' livin' heah when yo' was born, or was yo' born before yo' began livin' heah? Now, answer the gen'l'man!"

* * *

The head of a certain western concern is growing very absent-minded. The other day he went to his office instead of going to the golf course.

COST AND MANAGEMENT

THE CANADIAN SOCIETY OF COST ACCOUNTANTS AND INDUSTRIAL ENGINEERS

EXAMINATIONS

(Regulations as amended, October 27, 1933.)

A.—General

1. The Society will grant a Certificate of Efficiency in Cost Accounting and Business Organization and Administration to each person passing its two examinations and submitting a satisfactory thesis.

2. The examinations will be held on the first consecutive Monday and Tuesday in May of each year, at such points as may be decided by the Society. The Society will endeavor to hold an examination at any place where there are four or more candidates.

3. Application to try an examination in the following May, may be made up to February 28 each year, on the form provided by the Society.

4. Candidates for the First Examination must have attained the age of 21 years, and must have at least two years' experience in accounting or cost accounting.

5. Candidates for the Second Examination must have passed the First Examination and must have at least four years' experience in accounting or cost accounting, and must be members of the Society, with fee paid in full for the Society's financial year in which the examination is held.

6. Candidates are at liberty to answer questions in either English or French. Good composition and spelling are general requirements.

7. The pass mark for each subject shall be 60 per cent., and the honor mark 80 per cent.

8. Candidates for the First Examination may obtain exemption from subjects (a) or (b) of the First Examination, by applying for such exemption and furnishing satisfactory proof. (a) That they have passed the Intermediate Examination of any of the following bodies: Any Society or Institute belonging to the Dominion Association of Chartered Accountants; Corporation of Public Accountants of the Province of Quebec; Institute of Accountants and Auditors of the Province of Quebec; Association of Accountants and Auditors of Ontario; General Accountants' Association; or (b) That they have passed equivalent examinations, of which the Society approves, in any of these subjects.

9. A candidate for the First Examination must pass all subjects of that examination within a period not exceeding three years. A candidate for the Second Examination must pass both subjects of that examination at the one time.

10. The fees for examination are: First Examination, one subject \$5, complete \$10; Second Examination, complete \$10. The fee must accompany the application, and will be returned if the application is refused, or if an examination is not held in a place which in the opinion of the Society is sufficiently convenient for the candidate.

11. Candidates will be supplied with paper suitable for the examinations.

12. A candidate found guilty of any dishonest practice in an examination will be liable to permanent disqualification for examination standing and for membership in the Society.

13. These rules are subject to amendment at any time by the directors of the Society.

EXAMINATIONS

B.—First Examination

14. The subjects for the First Examination shall be as follows:

(a) Bookkeeping, including double entry, control accounts, columnar Journals, closing of books, etc., also simple knowledge of bills of lading, cheques, etc.

(b) Accounting, including main principles, capital and revenue, expenditure and receipts, apportionment of expense over departments, and preparation of statements of manufacturing, trading, profit and loss, net income, surplus of appropriation, balance sheets, etc.

(c) Cost Accounting, including main principles and records, factory ledgers, distribution of factory overhead, wages, receipts and issue of materials, etc.

15. The time allowed for examination shall be three hours for each of the above subjects.

C.—Second Examination

16. The subjects for the Second Examination shall be as follows:

(a) Cost Accounting, advanced.

(b) Business Organization and Administration.

17. The time allowed for examination shall be four hours for Cost Accounting and three hours for Business Organization and Administration.

18. Each candidate will be required to mail to the Society's office, within one year from the date of the examination, a thesis describing an entire costing system, including specimens of the principal forms used. This thesis shall be prepared privately by the candidate, and must be entirely his own composition. Two copies must be forwarded to the Society, one entirely in the handwriting of the candidate, and one typewritten. The thesis should not exceed 10,000 words in length.

OUTLINE OF SUBJECTS

First Examination

(a) Bookkeeping

Principles of debit and credit, and the double entry bookkeeping system, including the use of control accounts for subsidiary ledgers, up to and including the closing of a set of books and preparation of trading and profit and loss statements and balance sheets; invoices, statements of account, etc.; bills of exchange and notes; bills of lading and other commercial documents; capital and revenue receipts and expenditures; reserves for bad debts and discounts; depreciation and reserves for depreciation; columnar journals for departmental concerns; cash books, where cash, etc., banked daily, and where not; imprest system for petty cash; adjustments for interest, expenses paid in advance, accrued charges, etc.; working sheets; single entry.

Books Suggested:

120 Graduated Exercises in Bookkeeping, by Thompson, published by Sir Isaac Pitman & Sons (Canada) Ltd., Toronto. \$1.50. Key \$1.00. Knowledge of definitions on pages 11, 13 from capital cash receipts to end, 15, 17 from gross profit to end. Knowledge of the uses of all rulings, pages 25, 58.

Accounting, by Smalls & Walker, published by Ryerson Press, Toronto. \$4.50. Chapters 1-7.

Canadian Modern Accounting, by Sprott & Short, published by Commercial Text Books Co., Toronto. \$3.50.

(b) Accounting

Operating Statements and Balance Sheets: Trading, general operating or profit and loss, net income, surplus or appropriation, etc.; current and fixed assets and liabilities.

Partnership: The agreement, various kinds of partners, etc.; various methods of sharing profits and losses; closing off a set of

COST AND MANAGEMENT

partnership books; admission of a new partner; consolidation of partnership, dissolution and sale to a company.

Goodwill and Its Valuation.

Manufacturing Accounts. Definition of charge-headings and subdivision and grouping; factory ledger and its accounts; closing off the books of a manufacturing partnership and of a manufacturing company; manufacturing statements.

Criticism of Operating Accounts: Methods of comparison of figures for successive periods; cross-checks.

Departmental Accounts: Organization and records required; internal check; distribution of expenses over departments; statements to show results of departments separately; comparison of results of departments operations.

Voucher Register System.

Depreciation, various kinds, etc.

Reserves, Sinking Funds, etc.: Reserves which must be made before net profits ascertained; reserves of profits.

Various Methods of Quotation. F.O.B., C.I.F., etc.

Incorporated Companies: How a public company is formed; directors, shareholders, etc.; public and private companies; limited liability; common and preferred share capital; different kinds of shares, par and no-par value share; authorized, subscribed, called and paid capital; bonds and debentures, discounts and premiums; capital and revenue profits and losses; dividends.

Books Suggested:

120 Graduated Exercises in Bookkeeping, by Thompson, published by Sir Isaac Pitman & Sons (Canada) Ltd., Toronto. \$1.50. Key \$1.00. Exercises R to Z, AA, BB and CC. Knowledge of all definitions, pages 11-17. Knowledge of subdivision of statements as per pages 59-61.

Accounting, by Smails & Walker, published by Ryerson Press, Toronto. \$4.50. Chapters 1-11 and 13. Chapter 14, pages 192-200. Chapter 21 for section regarding operating accounts only.

(c) Cost Accounting

A knowledge of the fundamentals of cost accounting, the essential records, and methods of arriving at cost, including the following: Purposes of cost accounting; classification of cost; process cost accounting; specific order cost accounting; manufacturing expense theory; use of cost records; controlling accounts and perpetual inventories; classification of accounts; accounting for materials; material storage and consumption; valuation of materials; accounting for labor costs; accounting for manufacturing expense; distribution of service department cost; distribution of manufacturing expense to production; the cost to make and sell; monthly closing entries; preparation of analytical statements; comparative statements; special conditions.

Books Suggested:

Cost Accounting, by W. B. Lawrence, published by Prentice-Hall, Inc., New York. \$5.00. Chapters 1-20.

Business Costs, by Eggleston & Robinson, published by Appleton & Co., New York. \$6.00.

Cost Accounting, by Nicholson & Rohrbach, published by Ronald Press Co., New York. \$5.00.

Industrial Accounting, by Sanders, published by McGraw-Hill Book Co., New York. \$4.00.

Cost Accounting, by Jordan & Harris, published by Ronald Press Co., New York. \$4.00.

EXAMINATIONS

Second Examination

(a) Cost Accounting

Advanced and detailed knowledge of costing problems, records and practices, and cost of accounting in relation to inventories, budgetary control, and other devices of the various departments of a business, including the following: Job costs; process costs; building up a cost sheet, and accessory forms such as requisition notes, time tickets, perpetual inventory cards, etc.; relation between general and cost accounts; statement of cost of goods manufactured; statement of trading; statement of profit and loss; ratios of management; presentation of costs to management; comparison of costs among competing companies; debatable methods; interest on investment; graphic charts; relative values; estimating cost systems; establishment of standard costs; uses of standard costs; advantages of auditing; uniform methods.

Books Suggested:

Cost Accounting, by W. B. Lawrence, published by Prentice-Hall, Inc., New York. \$5.00. Chapters 1-20.

Business Costs, by Eggleston & Robinson, published by Appleton & Co., New York. \$6.00.

Cost Accounting, by Nicholson & Rohrbach, published by Ronald Press Co., New York. \$5.00.

Industrial Accounting, by Sanders, published by McGraw-Hill Book Co., New York. \$4.00.

Cost Accounting, by Jordan & Harris, published by Ronald Press Co., New York. \$4.00.

(b) Business Organization and Administration

A knowledge of internal organization, both office and plant, of leading types of business concerns, and the functioning of the various departments, including the following: Legal forms of business; general plan of organization of a business; departmental functions and organization—purchasing, production, advertising, sales, shipping, finance, stores, accounting, cost accounting, credit and collection, engineering, traffic, power, maintenance; executive control; location of plant; design and equipment; office organization and management; factory organization and management; employment; wage systems; welfare work development of new products; net profit angle.

Books Suggested:

Administration of Industrial Enterprises, by Jones, published by Longmans, Green & Co., New York. \$3.75.

(c) Thesis:

A description which should not exceed 10,000 words in length, of an entire costing system in a major industry, and including specimens of the principal forms used. It should cover actual costs, standard costs, and budgetary control. A description of costing in a small concern may be accepted if it covers both fundamentals and details.

Women (about to attend political meeting): I'm not prejudiced at all. I'm going with a perfectly open and unbiased mind to listen to what I'm convinced is pure rubbish!"

* * *

"You don't seem to be a lover of music although you have four musical daughters."

"If you had four musical daughters you would not be a lover of music."

CHAPTER NOTES

TORONTO

A really fine evening was enjoyed by those who turned out for Toronto Chapter's social night on February 8th, the only drawback to the affair being the relatively slim attendance. However, this was forgotten fairly early in the programme, and we rather doubt if some of those present were altogether qualified to give anything like an accurate approximation of the number actually on hand. If Bruce Taylor ever decides to quit the accounting game, we know of at least one profession at which he would excel—and if you don't believe us, ask Chairman Sorley.

Mr. Marshall, a guest of H. C. Upper, proved to be the Culbertson of the party and took away a very fine camera which had been donated by J. W. Spence as a bridge prize. Our thanks are expressed to Mr. Spence, and also to Mr. Landell, who, by the by, enjoyed the doubtful distinction of being awarded the "booby" although he was certainly far from the worst bridge player in attendance, for contributing to the success of the party by donation of prizes.

Additional refreshments, including most welcome coffee, were served about eleven and after a somewhat contentious table debate on pacifism, the party broke up. As remarked above, the turnout was none too good, and we can sincerely say that those who did not take in this event missed a mighty good time.

The next meeting of the Chapter has been switched to March 5th, when Mr. J. Jennings, K.C., of Jennings and Clute, will speak on the subject: The Constitution, Management and Powers of the Bank of Canada. This is a subject of general appeal and interest, and a large attendance is expected to be on hand.

HAMILTON

Reported by R. Dawson

Hamilton Chapter members had two fine meetings during the month of February, and without a doubt, the present season has been one of best since the Chapter was organized.

First, we had Mr. H. C. Upper, of the Canadian Wineries Ltd., of Toronto who spoke on "Cost Accounting in the Wines Industry". The attendance at this meeting was hardly as large as most of our meetings, but what the members lacked in numbers they certainly made up in enthusiasm. They enjoyed the dinner and they also enjoyed Mr. Upper's talk, judging by the questions which were fired at him, at the conclusion of his address. Mr. Upper created a fine impression by the manner in which he answered questions. It may have been the influence of the "Bubbly" he was kind enough to bring along, for the members certainly did it justice, but nevertheless, it is a fact that everyone present thoroughly enjoyed the meeting and Mr. Upper will always be welcomed back here.

The next meeting was well attended when Mr. B. W. Lang, of the Goodyear Tire and Rubber Co. Ltd., of New Toronto, spoke on "Depreciation." Here again the members were well rewarded for their attendance, for Mr. Lang showed a thorough knowledge of his subject, and his talk was a masterpiece. He was listened to with rapt atten-

CHAPTER NOTES

tion, and at the conclusion many questions were asked, showing the attentive manner in which is talk had been received.

The Hamilton Chapter makes a point of having the Directors meet the Speaker at dinner, prior to the meeting, at the Wentworth Arms Hotel, and these dinners are being much better attended than was formerly the case. This is very pleasing to the Directors of the Chapter, who find that these dinners do much to cement the cordial relations which exist between the members.

The next meeting will be on March 6th, and will take the form of a meeting of a number of disgruntled shareholders, who will meet to analyze the balance sheet of a company pretty well on its last legs, and to endeavor to lay plans for a complete re-organization. It promises to be a real night, and the attendance will undoubtedly be up to the average.

Harold Wright, our past chairman, and present vice-chairman of the Dominion Board, has left on a trip to South America. His health recently has not been of the best and it is hoped that he will benefit considerably as a result of his vacation.

MONTREAL

(From the Montreal Gazette, February 16)

Serious social and political consequences will result from the invasion of the agricultural field by the research worker who is concentrating on greater productive efficiency, the Montreal chapter of the Canadian Society of Cost Accountants and Industrial Engineers was told last night.

Speaking in the Arts Building at McGill University, on "Some Aspects of Agricultural Research as They May Effect the Economic Basis," T. R. McLagan, local industrial engineer declared that existing unemployment conditions would pale into insignificance beside what would be experienced as a result of the new trend.

Although American agriculture is only about 8½ per cent efficient at the present time it already over-produces. If the agricultural efficiency reaches 70 per cent, it will mean that 40,000,000 acres instead of the 240,000,000 acres only will be required and that 8,000,000 farmers who are heads of families will join the ranks of the unemployed, and flock to the urban factories long since swamped with the wails of the machine age, he said.

"Even a 20 per cent. efficiency today would send our statesmen to the insane asylum," the speaker added. Mr. McLagan said he ignored altogether the effects of labor-saving machinery on farms, but spoke entirely on the increase in productivity of field crops made possible by the technician in respect to plants and fertilizers. The revolution in agriculture he considered would take place faster than the industrial revolution, and farms would be run on factory lines.

A film "Pictorial tale of refining, manufacturing and distributing petroleum products from Halifax to Vancouver" was shown by Leslie Ghyoce of the McColl Frontenac Oil Co., Limited.

A presentation of a silver salver was made to George Mackenzie, one of the members, on the occasion of his forthcoming marriage. The presentation was made by L. Belanger. Paul E. Dufresne, presided at the meeting.

COST AND MANAGEMENT

THE TREND OF PRODUCTION COSTS

Commodity prices as measured by the Dominion Bureau of Statistics index number, which is based on the year 1926, recorded a slight advance in January to 71.5, compared with 71.2 for December 1934. The following is a comparison by main groups:

	Jan. 1934	Dec. 1934	Jan. 1935
Foods, beverages and tobacco	69.1	67.9	68.5
Other consumers' goods	77.6	76.7	77.3
All consumers' goods	74.2	73.2	73.8
Producers' equipment	86.5	89.6	89.7
Building & construction materials	82.5	81.5	81.8
Manufacturers' materials	60.5	63.4	63.6
All producers' materials	63.6	66.0	66.2
All producers' goods	65.9	68.4	68.6
All commodities	70.6	71.2	71.5

The principal advances in January were in the following: Vegetable oils, rubber and its products, fishery products, furs, live stock, carpets, antimony and asphalt. Principle declines were in: Eggs, cotton yarn and thread, wool blankets, solder, salt, lime, sand and gravel, explosives and soap.

PERSONAL

At the annual meeting of the Canadian Society for Commercial Education held in Montreal recently, Prof. R. M. Sugars, dean of the School of Commerce, McGill University, who is a member of our Montreal Chapter was elected a vice-president. Others of Montreal Chapter who are on the executive of the Society are: L. Favreau, who was appointed treasurer; and Messrs. R. R. Thompson and D. R. Patton, both of whom are members of the executive committee.

CONGRESS FOR SCIENTIFIC MANAGEMENT

AN International Congress for Scientific Management will be held in London, England, this year from July 15th to 20th, to which all who are interested are invited. The following is quoted from an official circular announcing the Congress, and the list of subjects for discussion is also printed because our own members will probably be interested in seeing the topics selected for such an important gathering. The Council in charge of the Congress includes representatives of the Institute of Cost and Works Accountants and numerous other British organizations.

"A cordial invitation to attend the Sixth International Congress for Scientific Management to be held in London from July 15th-20th, 1935, is extended by the Council of the Congress to all those who are interested in any phase of management, whether agricultural, commercial, domestic or industrial.

"Previous congresses have been held in Prague (1924), Brussels (1925), Rome (1927), Paris (1929) and Amsterdam (1932), and now Great Britain has the privilege of providing a common meeting ground for discussions on the applications and theory of management.

"H.R.H. THE PRINCE OF WALES is the PATRON of the Congress and is expected to open the proceedings. H.M. Government will

CONGRESS FOR SCIENTIFIC MANAGEMENT

invite members to a reception. A reception will also take place in the Guildhall of the City of London by invitation of the Lord Mayor and Corporation. Further hospitality is offered by many companies and institutions.

"An excellent and varied series of papers by managers of eminence has been promised from many countries. A wide national support has been secured, and representative delegations from many parts of the world are making arrangements to be present.

"The final details will be printed in the Congress HANDBOOK which will be issued to members, together with information regarding travel rates and hotels.

"The Council and its Committees are making every endeavour to provide the fullest facilities for every member, and to organise an occasion of real usefulness and importance.

"It will be a great help to the organisers and add to the convenience of members if all intending to take part will complete the membership form and send it, with the appropriate fee, at the earliest date to the Secretary, Sixth International Congress for Scientific Management, 21 Tothill Street, London, S.W.1. It is expected that there will be many calls on hotel accommodation in London next summer, and early reservations should therefore be made.

"The International Congress for Scientific Management is now held every three years. This is the first time that the Congress has been held in Great Britain. More than two thousand members were enrolled for the Paris Congress.

"The International Committee for Scientific Management, the President of which is Professor Th. Limperg, Jr., of Amsterdam, is responsible for the general arrangements regarding these Congresses. This Committee consists of representatives of twelve National Committees. The British Executive Committee is co-operating closely both with these committees and with correspondents in forty other countries.

Objects of the Congress.

"The Congress will discuss papers illustrating the best management practice in all parts of the world. References to actual technique will relate to specific problems and how they have been met.

"The Congress will provide opportunities for members to meet, in an informal way, people from other countries interested in the same problems as themselves. This will be a definite feature of the organisation. The subjects chosen for discussion will appeal to all those holding managerial positions in any capacity.

"The change in economic conditions throughout the world and the progress of invention have created a need for a new technique in management. It is intended that the Congress by widening the public interest in these new phases of management shall prove to be a definite milestone in the advance of management efficiency.

SUBJECTS OF THE SIXTH CONGRESS

"The subjects allotted for discussion at the Congress are given below. The order in which the various sections are presented does not imply any priority in interest or importance.

Manufacturing Section.

"Methods of controlling production." Sub-heads:

- (a) Budgetary control, standards and forecasts.
- (b) Scientific methods applied to works management.
- (c) Production control to meet changes of product, of design or of process.
- (d) Production management technique.

COST AND MANAGEMENT

Agricultural Section.

"Standardisation as a factor in agricultural development, including standardisation of equipment, methods and produce."

Management problems consequent on the development of standardisation as a factor in agriculture relating to:

- (a) Mechanisation on the farm.
- (b) The use of accounts in farm management.
- (c) The preparation of produce for market.
- (d) Specialised versus mixed farming.

Distribution Section.

"Concrete examples of the application of scientific management to distribution problems in manufacturing, wholesaling and retailing." Sub-heads:

- (a) Methods of organisation which manufacturers have applied to their distribution systems and including control of distribution processes.
- (b) Methods applied to distribution problems by wholesalers.
- (c) Methods applied to distribution problems by retailers.
- (d) The planning and carrying out of schemes for the sale of products not previously marketed.

Educational and Training Section.

"Methods of selection, education and training of personnel suitable for high administrative positions." Sub-heads:

- (a) Preliminary education.
- (b) Sources of recruitment and methods of selection.
- (c) Objects and methods of training and further education.
- (d) Avoidance of excess and waste of personnel selected and trained for high administrative positions.

Development Section.

"What are the correct methods of inculcating modern management principles and practices in large-scale, medium and small undertakings? What is the rôle of Trade or other Associations in this field?" Sub-heads:

- (a) Large-scale organisations.
- (b) Medium-scale organisations.
- (c) Small-scale organisations.
- (d) The rôle of institutions, trade and other associations and similar bodies.

Domestic Section.

"How far can Scientific Management in the home contribute to the raising of the standard of life?" Sub-heads:

- (a) Food planning in the Home to ensure satisfactory nutrition with a minimum expenditure of time, money and labour.
- (b) The development of scientific home management in agricultural areas.
- (c) The technique of scientific management in the home:
 - (i) What are the present methods of investigation?
 - (ii) How can improved techniques be evolved
 - (iii) What steps should be taken to secure the application of results?
- (d) The rôle of organised services outside the home in relation to scientific management in the home.

Stout Gentleman (who has been knocked down)—Couldn't you have gone round me?

Fair Motorist—Sorry! Wasn't sure whether I'd enough petrol.

